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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,150	11/26/2003	Vinoj N. Kumar	5-5	9235

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Ryan, Mason & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560

EXAMINER

BROWN, CHRISTOPHER J

ART UNIT	PAPER NUMBER
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2134

MAIL DATE	DELIVERY MODE
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06/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/723,150

Applicant(s)

KUMAR ET AL.

Examiner

Christopher J. Brown

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 1-20 are objected to because of the following informalities: Claims 1-20 contain the clause "Wherein". The examiner would like to note, according to MPEP 2111.04

Claim scope is not limited by claim language that suggest or makes optional but does not require steps to be performed. Examples of claim language, although not exhaustive, that may raise a question as to the limiting effect of the language in a claim are:

(A) adapted to, or adapted for clauses;

(B) wherein clauses; and

(C) whereby clauses.

Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be

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commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3, 4, 13, 14, 16, 17, 18, 19, 20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 11, 12, 14, 15, 17, and 20 of copending Application No. 10723160. Although the conflicting claims are not identical, they are not patentably distinct from each other because It would have been obvious to one of ordinary skill in the art to use the access control list multi-level tree representation directed graph and common subtree of application 10723160 with the access control list multilevel tree representation of application 10723150.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim(s) __1, and 2__ of application # 10723160 contain(s) elements of

Claim(s) __1__ of the instant application and as such anticipate(s) claim(s) _1_ of the instant application.

Claim(s) __3__ of application # 10723160 contain(s) elements of

Claim(s) __3__ of the instant application and as such anticipate(s) claim(s) _3_ of the instant application.

Claim(s) __4__ of application # 10723160 contain(s) elements of

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Claim(s) __4__ of the instant application and as such anticipate(s) claim(s) _4_ of the instant application.

Claim(s) __13__ of application # 10723160 contain(s) elements of

Claim(s) __12__ of the instant application and as such anticipate(s) claim(s) _12_ of the instant application.

Claim(s) __14__ of application # 10723160 contain(s) elements of

Claim(s) __11__ of the instant application and as such anticipate(s) claim(s) _11_ of the instant application.

Claim(s) __16__ of application # 10723160 contain(s) elements of

Claim(s) __13__ of the instant application and as such anticipate(s) claim(s) _13_ of the instant application.

Claim(s) __17__ of application # 10723160 contain(s) elements of

Claim(s) __14__ of the instant application and as such anticipate(s) claim(s) _14_ of the instant application.

Claim(s) __18__ of application # 10723160 contain(s) elements of

Claim(s) __15__ of the instant application and as such anticipate(s) claim(s) _15_ of the instant application.

Claim(s) __19__ of application # 10723160 contain(s) elements of

Claim(s) __17__ of the instant application and as such anticipate(s) claim(s) _17_ of the instant application.

Claim(s) __20__ of application # 10723160 contain(s) elements of

Claim(s) ___20___ of the instant application and as such anticipate(s) claim(s) _20_ of the instant application.

Claim Rejections - 35 USC § 103

Claims 1, 3-9, 11, 12, 15, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Cathey US 2002/0085560 in view of Holdsworth US 2003/0188198

As per claim 1, Cathey teaches determining a plurality of rules (packet classification), each of at least a subset of the rules having a plurality of fields (extracted fields of header data) and a corresponding action (identify application programs to execute); and processing the rules to generate a multi-level tree representation (classification logic is configured as a decision tree), (Fig 5B, [0052], [0061], [0063]). Cathey teaches each of one or more of the levels of the tree representation being associated with a corresponding one of the fields (level one associated with source address, level two associate with destination address) [0063]. Cathey teaches at least one level of the tree representation other than a root level of the tree representation comprises a plurality of nodes (Header Check 2, Fig 5B, [0063], Cathey teaches at least two of the nodes at that level each having a separate matching table associated therewith (header check 2 checks Internet Protocol Destination Address and compares to predefined data, and address tables),([0063], [0067], [0078]).

Cathey fails to teach access control lists or explicitly state separate matching tables.

Holdsworth teaches access control lists and separate matching tables (each node may have its own acl) [0048].

It would have been obvious to one of ordinary skill in the art to use the ACL of Holdsworth with the decision levels and fields of Cathey because it allows security and access control to be performed to enhance network safety.

As per claim 3, Cathey teaches the plurality of fields comprises at least first and second fields, the first field comprising a source address field and the second field comprising a destination address field [0063].

As per claim 4, Cathey teaches a final level of the tree representation comprises a plurality of leaf nodes (packet classification), each associated with one of the actions (choosing an application) of the plurality of rules (Fig 5B, [0063], [0083]).

As per claim 5, Cathey teaches the root level of the tree representation includes a plurality of field values, each corresponding to a distinct source address in a first field of the plurality of rules (header check 1 at the root may include a source address, compared to predefined source address table, ([0063] [0076])).

As per claim 6, Cathey teaches a second level of the tree representation includes a plurality of nodes, each being associated with a subtree of a given one of the distinct source addresses of the root level of the tree (Fig 5B, [0063]).

As per claim 7. Cathey teaches a given one of the second level subtrees identifies one or more destination addresses to be examined if the corresponding root level source address matches a source address of a given received packet. (header check 2 at the node may include a destination address, (Fig 5B [0063])).

As per claim 8. Holdsworth teaches a matching table at a given level of the tree representation other than a root level of the tree representation comprises at least a portion of a subtree identified by a particular field value from an immediately previous level (nodes may inherit parent ACL lists) [0058].

As per claim 9. Cathey teaches the tree representation is generated by associating a first node at the root level with a given value in a first field (source address) of one of the plurality of rules (packet classification), and then processing remaining field values (destination address) sequentially, with each value in turn being compared to one or more existing values (predetermined information) at the appropriate node(s) of the tree representation to determine if a match exists, and associating that value with a matching table (address table) at one of the nodes of the tree representation based at least in part on the determination (Fig 5B, [0063], [0067], [0078]).

As per claim 11. Holdsworth teaches the corresponding actions include at least an accept action and a deny action (allow, deny) [0051].

As per claim 12, Cathey teaches the step of storing at least a portion of the tree representation in memory circuitry accessible to the processor (stored in IRAM connected to packet classification engine) [0030].

As per claims 15, and 20 Cathey teaches a processor having memory circuitry associated therewith; the memory circuitry being configured for storing at least a portion of a multi-level tree representation (stored in IRAM connected to packet classification engine) [0030].

Cathey teaches each of one or more of the levels of the tree representation being associated with a corresponding one of the fields; (extracted fields of header data).

Cathey teaches the processor being operative to utilize the stored tree representation to perform a function (classify) [0030]. Cathey teaches at least one level of the tree representation other than a root level of the tree representation comprises a plurality of nodes, (Header Check 2, Fig 5B, [0063] Cathey teaches at least two of the nodes at that level each having a separate matching table associated therewith (header check 2 checks Internet Protocol Destination Address and compares to predefined data, and address tables),([0063], [0067], [0078])).

Cathey fails to teach access control lists or explicitly state separate matching tables.

Holdsworth teaches access control lists and separate matching tables (each node may have its own acl) [0048].

It would have been obvious to one of ordinary skill in the art to use the ACL of Holdsworth with the decision levels and fields of Cathey because it allows security and access control to be performed to enhance network safety.

As per claim 17. Cathey teaches the memory may be integrated with the classification engine on a controller [0040].

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Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Cathey US 2002/0085560 in view of Holdsworth US 2003/0188198 in view of Miller US 2003/0005146

As per claim 2, the previous Cathey-Holdsworth combination does not teach longest prefix matching. Miller teaches using the longest prefix matching (LPM) method, [0031].

It would have been obvious to one of ordinary skill in the art to use the LPM method of miller with the system of Cathey-Holdsworth to improve matching efficiency, [0015].

Claims 10, 13, 14, 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Cathey US 2002/0085560 in view of Holdsworth US 2003/0188198 in view of Gai US 6,651,096.

As per As per claim 10, the previous Cathey-Holdsworth combination does not teach each of at least a subset of the nodes of the tree representation having values in the matching table are arranged in order of decreasing specificity.

Gai teaches each of at least a subset of the nodes of the tree representation having a separate matching table associated therewith, values in the matching table are arranged in order of decreasing specificity (wildcards increase down the list) (Fig 5A Source Address).

It would have been obvious to one of ordinary skill in the art to use the list of Gai with the system of Cathey-Holdsworth in order to filter in order of desire.

As per claim 13, the previous Cathey-Holdsworth combination does not teach the hardware and CPU used in implementing an ACL.

Gai teaches the step of utilizing the stored tree representation to perform an access control list based function in the processor (teaches using ACL stored in CAM with CPU) (Col 4 lines 10-25).

It would have been obvious to one of ordinary skill in the art to use the hardware of Gai with the system of Cathey-Holdsworth because a CPU is necessary to implement software.

As per claim 14, Gai teaches the access control list based function comprises packet filtering (receipt and action for packet) (Col 4 lines 30-36).

As per claim 16, Gai teaches the access control list based function comprises packet filtering (receipt and action for packet) (Col 4 lines 30-36).

As per claim 18, Gai teaches the processor comprises a network processor (intermediate network device CPU) (Col 4 lines 7-10).

As per claim 19, Gai teaches the processor comprises an integrated circuit (CPU) (Col 4 lines 7-10).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher J. Brown whose telephone number is (571)272-3833. The examiner can normally be reached on 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Zand can be reached on (571)272-3811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher Brown

6/18/07

A handwritten signature in black ink, appearing to read "Christopher J. Brown". The signature is fluid and cursive, with the first name "Christopher" being more legible than the last name "Brown".